

**Amendments to the Drawings:**

The attached Replacement sheets of drawings including Figs. 1e1-1fII, 3a-3d, and 6b, and the attached New sheet of drawings including Fig. 7 are submitted in response to the objections to the drawings as detailed in the Office Action. No new matter has been added. The Replacement sheets replace the original sheets containing Figs. 1e1-1f2, 3I-3a, and 6b-6c. Approval and entry are respectfully requested.

Attachment: nine (9) Replacement sheets  
one (1) New sheet

## **REMARKS**

### **I. Introduction**

With the addition of new claims 7 to 11, and the cancellation of withdrawn claims 3 and 4, claims 5 to 11 are currently pending in the present application, since claims 1 and 2 were previously canceled. In view of the foregoing amendments and following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

Applicant notes with appreciation the acknowledgement of the claim for foreign priority and the indication that all certified copied of the priority documents have been received.

### **II. Objections to the Specification**

The title has been amended herein, thereby rendering moot the present objection to the title.

With respect to the objection regarding referencing all of the Figures 1, the "Brief Description of the Drawings" section has been amended herein so that it refers to Figures 1a-1fII.

The Office Action asserts that the Specification refers to figures that were not included in the drawings. Specifically, the Office Action asserts that Figures 4b, 4c, 5, and 6a were not included. Those Figures were filed on October 3, 2005. It appears that the Examiner was referring only to the Figures submitted with the Preliminary Amendment filed April 18, 2007. However, those Figures did not replace all of the originally filed Figures, but rather only the originally filed Figures 1a, 1bI-1bIII, 1fI, 2, 3a, 4a, and 6b. Thus, originally filed Figures 4b, 4c, 5, and 6a were not canceled.

The Office Action asserts that the Specification does not adequately describe Figures 1a-1fII. Applicants respectfully disagree, since the description of the Figures was sufficient for one of ordinary skill in the art to understand the claimed subject matter. Nevertheless, to facilitate matters, the Specification has been amended to further describe Figures 1a-1fII.

Withdrawal of the objections to the Specification is therefore respectfully requested.

### **III. Drawings**

The Office Action objects to the drawings as assertedly failing to show all of the claimed features. However, under 37 C.F.R. § 1.81(a) -- to which § 1.83(a) is subject -- an applicant is only "required to furnish a drawing of [the] invention where necessary for the understanding of the subject matter sought to be patented." It is respectfully submitted that those features of the claims which were not illustrated in the originally filed drawings are fully described by the specification and/or would be understood by a person having ordinary skill in the art, so that drawings of those aspects are not necessary. Nevertheless, to facilitate matters, attached herewith is a New sheet of drawings including new Figure 7, which illustrates the steps of the present claims. The specification has been amended to include references to the new Figure. Approval and entry are respectfully requested.

The Office Action objects to the drawings for assertedly jumping from Figure 1bIII to Figure 1fI and from Figure 4a to Figure 6b. As noted above, the Examiner apparently is referring to only those drawings provided with the Preliminary Amendment, as has not considered the originally filed drawings which were not canceled, since the originally filed drawings include Figure 1c, 1d, etc.

The drawings were further objected to as including an inconsistent labeling scheme. The drawings have been amended herein, thereby rendering moot this objection.

As to the labeling of Figures 2-4, Figure 2 includes only one Figure and therefore does not include a letter in its label. Each of Figures 3 and 4 include more than one Figure and therefore include letters in their labels.

As to the objection to the labeling of Figure 6c, a replacement sheet is included which includes the features of original Figures 6b and 6c, relabeled as Figure 6b.

Withdrawal of the objection to the drawings is therefore respectfully requested.

### **IV. Double Patenting**

Claims 5 and 6 were provisionally rejected as unpatentable over co-pending Application No. 10/501,845. Such a rejection does not require filing of a Terminal Disclaimer or other response unless the claims of the cited application actually issue, and the double patenting rejection remains as the sole remaining rejection in this application. Applicant thanks the Examiner for the notification, and will respond further to this rejection when the rejection is no longer provisional, as required by the patent rules.

**V. Rejection of Claim 5 Under 35 U.S.C. § 103(a)**

Claim 5 was rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of U.S. Patent No. 6,658,564 (“the Smith reference”), U.S. Patent No. 7,000,161 (“the Allen reference”), and U.S. Patent No. 6,374,286 (“the Gee reference”). It is respectfully submitted that the combination of the Smith, Allen, and Gee references does not render unpatentable claim 5, and the present rejection should be withdrawn, for at least the following reasons.

To reject a claim under 35 U.S.C. § 103(a), the Office bears the initial burden of presenting a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish *prima facie* obviousness, three criteria must be satisfied.

First, there must be some suggestion or motivation to modify or combine reference teachings. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). As clearly indicated by the Supreme Court, it is “important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements” in the manner claimed. *See KSR Int’l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007). In this regard, the Supreme Court further noted that “rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.*, at 1396.

Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986).

Third, the prior art reference(s) must teach or suggest all of the claim features. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

As explained herein, the Office Action does not satisfy these requirements of § 103 as to all of the features of the claims, as presented herein.

Claim 5 relates to a method for operating a reconfigurable unit having runtime-limited configurations, and, as herein amended without prejudice, recites the following:

- processing in accordance with a first configuration having a maximum allowed runtime;
- increasing, by a configuration, the first configuration's maximum allowed runtime;
- if an interrupt occurs, suppressing the increase in response to the interrupt; and
- if no interrupt occurs, reconfiguring the reconfigurable unit with a second configuration in response to expiry of the increased maximum allowed runtime, the increased maximum allowed runtime expiring if the first configuration, in a non-error operation and for a task switch, does not further increase the maximum allowed runtime.

The Smith reference does not refer to such a maximum allowed runtime.

The Office Action refers to the Allen reference as assertedly disclosing a configuration increasing its maximum allowed runtime. Applicant respectfully disagrees. The Allen reference merely indicates that a timer is run continually and that a configuration repeatedly signals the timer, so that in absence of receipt by the timer of a signal, it is known that an error has occurred. If a maximum allowed runtime is assigned to the configuration, it is not indicated that such a maximum allowed runtime can be increased by the signaling of the timer. The Office Action, however, appears to assert that, since without the signaling of the timer in the Allen reference, a reconfiguration would assertedly be performed due to occurrence of an error, therefore, the times between the signaling represent maximum allowed runtimes of the configuration without further signaling. While Applicant does not agree with this assertion, to facilitate matters, claim 5 has been amended to clarify that, even in the absence of an interrupt, the maximum allowed runtime is allowed to expire for a task switch in a non-error operation. In the Allen reference, if the maximum allowed runtime is the time period allotted to signal the timer to avoid an error state, then with signaling the timer, the maximum allowed runtime is increased to another time period allotted to signal the timer. At least if no interrupt occurs, the Allen reference requires the further signaling of the timer within that increased allowed runtime, for otherwise an error state is entered. Thus, the Allen reference does not disclose or suggest expiry of its allowed runtime in a non-error state.

The Gee reference does not correct this deficiency of the Smith and Allen references. As an initial matter, the Gee reference refers to operating multiple Java Virtual Machines (JVMs) in separate time slices (partitions) on a single processor, where one master

JVM controls the transfers between different JVMs. A JVM represents a bundling of instructions to which a time slice is assigned. Accordingly, the Gee reference merely provides, for ensuring context switches, a maximum allotted time for a set of instructions; not for a configuration. A configuration is of a function and/or interconnection of units *for* their use to execute instructions. At most, the Gee reference suggests a maximum allotted time for one or more instructions themselves, for which there may be a configuration. With the setting of a maximum allotted time for an instruction or instruction set to which a configuration corresponds, the cited art does not suggest that there should also be set a maximum allotted time in normal operation for the corresponding configuration. (As explained above, the Allen reference also does not provide a maximum allowed runtime for a configuration in normal operation.) The cited art does not suggest contemplation of any need or benefit to such an additional or substitute maximum allotted time. Indeed, the slices of the Gee reference are not comparable to configuration. As indicated above, configurations are *for* execution of instructions, so that the suggestion of a maximum allotted time for instructions would not further suggest a maximum allotted time to configurations which are *for* and correspond to those same instructions to which the maximum allotted time is already suggested to be set. Use of allotted maximum time to the configuration itself, whether in addition to or instead of one for the corresponding instructions, and/or its benefit has not been contemplated by the prior art.

Moreover, one of ordinary skill in the art would not contemplate modification of the timer features of the Allen reference in view of the features of the Gee reference, such that the timer of the Allen reference would enforce a task switch upon expiry of the allotted time period, because in the Allen reference the timer is provided precisely because it is supposed to be continually re-signaled to avoid entering an error state. If the configuration is allowed to refrain from signaling the timer in the Allen reference this would cause an error state to be entered which would prevent the further future loading of that configuration. Thus, the timer feature of the Allen reference and the context switch feature of the Gee reference are incompatible, so that one cannot be modified based on the other.

Accordingly, the combination of the Smith, Allen, and Gee references does not disclose or suggest all of the features of claim 5, as presented herein, so that the combination of the Smith, Allen, and Gee references does not render unpatentable claim 5.

Withdrawal of this obviousness rejection of claim 5 is therefore respectfully requested.

**VI. Rejection of Claim 6 Under 35 U.S.C. § 103(a)**

Claim 6 was rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the Smith reference, the Allen reference, the Gee reference, and Parhami, "Parallel Counters For Signed Binary Signals" ("The Parhami reference"). It is respectfully submitted that the combination of the Smith, Allen, Gee, and Parhami references does not render unpatentable claim 6, and the present rejection should be withdrawn, for at least the following reasons.

Claim 6 depends from claim 5 and is therefore allowable for at least the same reasons as claim 5, since the Parhami reference does not correct the critical deficiencies of the combination of the Smith, Allen, and Gee references, noted above in support of the patentability of claim 5.

Withdrawal of this obviousness rejection of claim 6 is therefore respectfully requested.

**VII. New Claims 7 to 11**

Claims 7 to 11 have been added herein. Claims 7 to 11 do not add new matter and are supported by the application, including Specification, as originally filed.

Claim 7 depends from claim 5 and is therefore allowable for at least the same reasons as claim 5.

Claim 8 relates to a method for operating a reconfigurable unit and provides for a configuration determining whether to trigger an increase of its maximum allowed runtime. The cited references do not disclose or suggest this feature. As explained above, the Allen reference provides that in any normal operation the configuration continually signals a timer, for otherwise the configuration is associated with an error, and the Gee reference does not refer to a maximum time for a configuration and further, for its maximum time for an instruction set, does not provide for increasing the maximum time.

Claim 9 relates to a method for operating a reconfigurable unit and provides that, for a configuration having a maximum allowed runtime, the unit is reconfigurable with a new configuration for handling an interrupt responsive to expiry of the maximum allowed runtime. The Office Action asserts that the Smith reference refers to the switching of configurations in response to occurrence of an interrupt. However, the cited references do not disclose or suggest that the interrupt would be handled responsive to expiry of a maximum allowed runtime. Indeed, the Office Action appears to suggest that, in combination with the Smith reference, the configuration of the Allen reference would not get

the chance to re-signal the timer because it would be immediately switched out, i.e., prior to expiry of the period by which to re-signal the timer.

Claim 10 includes subject matter analogous to that of claim 5 and is therefore allowable for at least the same reasons as claim 5.

Claim 11 relates to a reconfigurable unit and provides that a configuration is adapted to trigger a counter reset to increase its maximum allowed runtime conditional at least upon that an interrupt is not detected and that processing is to continue without a thread or task switch. As explained above, the Allen reference provides that a configuration must continually signal the timer, or else be associated with an error. Therefore, even in combination with the Smith reference, the Allen reference does not disclose or suggest that triggering of a counter reset, e.g., in absence of an interrupt, is still dependent on processing being scheduled to continue without a task or thread switch. Indeed, as long as the configuration is running it is adapted to continually signal the timer.

Accordingly, all of claims 7 to 11 are allowable.

#### **VIII. Conclusion**

In light of the foregoing, it is respectfully submitted that all of the presently pending claims are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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